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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,446	09/18/2003	Takatomo Nishino	09792909-5672	4529
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EXAMINER				
DOVE, TRACY MAE				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/664,446

**Applicant(s)**

NISHINO ET AL.

**Examiner**

TRACY DOVE

**Art Unit**

1726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to the communication filed on 11/23/10. Applicant's arguments have been considered, but are not persuasive. Claims 1-5 and 7-11 are pending.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/23/10 has been entered.

#### ***Priority***

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Japan on 9/17/02. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter. Examiner points out that while the preliminary amendment filed on 9/18/03 has amended the specification to recite "priority under 35 U.S.C. 119 is not claimed", the declaration/oath filed on 3/8/04 does not indicate priority is not being claimed (box on page 2 is not checked).

Appropriate correction is required.

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claims Analysis***

Claim 1 recites "effected by applying a compressive force and a shearing force to at least a part of a surface of a base material when the composite material is formed", which is not given patentable weight because it is a product-by-process limitation. Claim 7 also recites this limitation. See 9/24/10 Board decision affirming the Examiner.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 and 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 7 contain improper group language. Examiner suggests "selected from the group consisting of...".

Claims 2 and 8 recite the base material further includes....cobalt (Co), however cobalt is already listed as a possible element of the base material in claim 1 and 7, respectively.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-11 are rejected under 35 U.S.C. 102(b)/103(a) as being anticipated by, and alternatively unpatentable over, Kawakami et al., US 6,432,585.

Kawakami teaches a battery comprising an anode, a cathode and an electrolyte. The anode comprises an anode structural body 10. The structural body comprises a host material 101 in an amount of 50 wt% or more. If the electrode structural body is used in a lithium battery, the host material comprises one or more elements selected from the group consisting of Si, Sn and In (11:1-18). When Si is used as the host material, Cu, Ni, Ag or Sn may partially cover the surface of the Si particles (11:30-67). Si may contain an impurity such as Al, Ca, Cr, Fe, Mg, Mn or Ni to decrease the electric resistance of the electrode material layer 102 (12:1-5). Thus, Kawakami teaches a Si-Sn-Fe host material. The layer 102 may comprise the host material 101 and an electrically conductive auxiliary in order to assist and increase the electron conduction among particles of the host material or that between the host material and the collector. It is preferred the electrically conductive auxiliary be contained in an amount of 1-30 wt%. The electrically conductive auxiliary may be a carbonaceous material such as

acetylene black, ketjen black or graphite. The electrically conductive auxiliary may be in a filament-like, fibrous or needle-like form. The host material and carbonaceous material are mechanically mixed using a ball mill or the like (compressive/shearing force) (12:46-13:9). See also column 19, line 50-column 20, line 23. See also Example 12. Furthermore, the metallic material as the electrically conductive auxiliary can include iron (Fe) (13:3-5). Thus, in addition to the Sn host material described at column 15, line 65-column 16, line 12, the electrode material may comprise a iron electrically conductive auxiliary material. Note the claims do not require the base material necessarily be an alloy including tin and Fe.

Thus the claims are anticipated. Kawakami does not explicitly state the host material and carbonaceous material are bonded by van der Waals forces. However, when the host material and carbon material are mechanically mixed using a ball mill or the like (compressive/shearing force), the host material and carbon material are inherently attracted by van der Waals forces (weak attractive forces acting between molecules; see Hawley's Condensed Chemical Dictionary, page 1217). In order for the carbon material to assist and increase the electron conduction among particles of the host material, the carbon material must be in contact with the host material.

### ***Response to Arguments***

Applicant's arguments filed 11/23/10 have been fully considered but they are not persuasive. Applicant argues Kawakami discloses alloying tin with one or more of the elements selected from the group consisting of Sb, Bi, Pb, Ni, Cu, Ag and Zn" without disclosing anything pertaining to a mass ratio of a carbonaceous material to a base

material. However, Kawakami teaches If the electrode structural body is used in a lithium battery, the host material comprises one or more elements selected from the group consisting of Si, Sn and In (11:1-18). When Si is used as the host material, Cu, Ni, Ag or Sn may partially cover the surface of the Si particles (11:30-67). Si may contain an impurity such as Al, Ca, Cr, Fe, Mg, Mn or Ni to decrease the electric resistance of the electrode material layer 102 (12:1-5). A Si-Sn-Fe host material is encompassed by the teachings of Kawakami. Furthermore, the metallic material as the electrically conductive auxiliary can include iron (Fe) (13:3-5). Thus, in addition to the Sn host material described at column 15, line 65-column 16, line 12, the electrode material may comprise a iron electrically conductive auxiliary material. Note the claims do not require the base material necessarily be an alloy including tin and Fe.

Kawakami teaches the structural body comprises a host material 101 in an amount of 50 wt% of more. The layer 102 may comprise the host material 101 and an electrically conductive auxiliary in order to assist and increase the electron conduction among particles of the host material or that between the host material and the collector. It is preferred the electrically conductive auxiliary be contained in an amount of 1-30 wt%. The electrically conductive auxiliary may be a carbonaceous material such as acetylene black, ketjen black or graphite.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/TRACY DOVE/

Primary Examiner, Art Unit 1726

March 14, 2011